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IMPACT EVALUATION FOR THE USAID/ *APRENDER A LER* PROJECT IN MOZAMBIQUE

Year 2 (Midline 2) IE/RCT

Final Report – Executive Summary

February 25, 2015

This report was prepared for USAID/Mozambique by Magda Raupp, Bruce Newman, Luis Revés, and Carlos Lauchande under Evaluation Services IQC Task Order AID-656-TO-12-00002 awarded to International Business & Technical Consultants, Inc. (IBTCI), with Global Surveys Corporation (GSC Research) as sub-contractor. The authors' views expressed in this report do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Deliverable 7

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DISCLAIMER

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ACRONYMS

ApaL	*Aprender a Ler* (Learn to Read)
CAP	Concepts about Print
CEA	Cost Effectiveness Analysis
Clpm	Correct Letters Per Minute
Cwpm	Correct Words Per Minute
DPEC	*Direcção Provincial de Educação e Cultura* (Provincial Directorate of Education and Culture)
EGRA	Early Grade Reading Assessment
IBTCI	International Business and Technical Consultants, Inc.
IE	Impact Evaluation
IFP	*Instituto de Formação de Professores* (Teacher Training College)
INSET	In-Service Teaching
LEI	Local Education Institution
M&E	Monitoring and Evaluation
MINED	Ministry of Education of Mozambique
PD	Pedagogical Directors
RCT	Randomized Controlled Trial
RSA	Rapid School Assessment
SD	School Director
SDEJT	Service for Education of Youth and Technology
SMA	School Management Assessment
SMT	School Management Tool
TIMSS	Trends in International Mathematics and Science Study
TLA	Teaching-Learning Aid
TOT	Training of Trainers
UIS	Institute for Statistics (UNESCO)
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WEI	World Education Inc.
ZIP	*Zona de Influência Pedagógica*

EXECUTIVE SUMMARY

Background

United States Agency for International Development (USAID) Mozambique has financed World Education Inc. (WEI) to develop and implement an early grade reading approach, the USAID/Aprender a Ler (ApaL) project, in line with USAID's global goal of 100 million children reading by 2015. The project advocates the "simple view of reading" and includes vocabulary, decoding, fluency, and reading comprehension activities, training, coaching and scripted lesson plans for teachers, teaching-learning aids (TLAs), decodable books,[1] student readers and school director (SD) training and coaching to support reading instruction. ApaL was launched in July 2012 by USAID and the Ministry of Education of Mozambique (MINED). It has targeted at 45,469 students in second and third grades, 849 first and second grade teachers, and 61 school directors in122 schools. The schools were clustered around 34 *Zonas de Influência Pedagógica* (ZIPs)[2] in seven districts along the economic corridors of the provinces of Nampula and Zambézia in Mozambique.

Since September 2012, International Business and Technical Consultants, Inc. (IBTCI) has been conducting an Impact Evaluation (IE) of the ApaL project in a random sample of 180 schools in the two target provinces on behalf of USAID/Mozambique. The IE used a Randomized Controlled Trial (RCT) methodology and the Early Grade Reading Assessment (EGRA) to collect data on reading skills of approximately 3,600 second and third graders at three data points: Baseline in February-March 2013 at the beginning of the school year and Midline 1 and 2 near the end of the 2013 and 2014 school years respectively. In seven districts selected by the implementer, 34 ZIPs and their cluster of schools were randomly assigned to Medium treatment, which focuses on improved student learning, to Full treatment, which adds components for more effective school management, or to a non-treatment Control group. This Midline 2 report also contains a cost-effectiveness analysis. At the end of the 2015 academic year, a further data collection will be conducted to assess the sustainability of ApaL interventions one year following the end of ApaL assistance to treatment schools.

ApaL focuses on two objectives: (1) Improve the quality of reading instruction to be achieved through teacher in-service training, coaching and monitoring and the provision of TLAs and (2) Increase the amount of instruction delivered to be achieved through more efficient school management. While both treatment groups included the same teacher in-service training[3] and coaching and the provision of the same TLAs, the Full group includes a school management training component to increase the quantity of reading instruction through the adoption of a more efficient school management procedures.

Methodology

The main purpose of the IE is to assess the impact of the project on children's reading skills and provide evidence to guide future decision and policy making. In addition, the IE provides robust data to inform the scale-up of ApaL to 522 schools in 2015 and to advocate for improved early grade reading strategies. According to the IE model, the two treatment groups—Full and Medium—are compared to a no treatment Control group. The IE utilizes a randomized controlled trial (RCT) methodology with a counterfactual—e.g., a group similar to the treatment groups—to estimate what could be expected after a year of reading instruction without the benefit of the intervention. Having started with equivalent

[1] Decodable books are small, inexpensive, four- or six-page books with controlled text difficulty that the students are allowed to take home but must bring back. Almost 900,000 of them were distributed to the treatment schools.
[2] Schools in Mozambique are clustered (usually in groups of 5-7) around one lead school to constitute a *Zona de Influência Pedagógica* (ZIP).
[3] A direct training model would be unsustainable. ApaL uses a "modified cascade" training model, which is folded into the current MINED system making training more sustainable.

groups, the IE is able to assess the level of performance all students would have reached without the benefit of the project.

A second comparison of interest focuses on results obtained at the end of the 2013 school year after an abbreviated two-month intervention and those obtained at the end of 2014 after a full school year of project implementation. Results obtained at Baseline (February-March 2013) are presented to describe the situation prior to project implementation and to document that the randomization worked and that the groups (Full, Medium and Control) were equivalent as the project started. These comparisons are detailed in the Findings section of the report.

Six EGRA subtests were used in the assessment—Oral Comprehension, Concepts about Print (CAP), Letter Recognition, Reading Familiar Words, Reading Connected Text (Fluency) and Reading Comprehension.

Findings

Results show that after a full school year of project implementation, students in both the Medium and the Full treatment schools perform at significantly higher levels than their counterparts in Control schools on all EGRA subtests. The findings clearly indicate the impact of the project and show the improvement made by students in the intervention groups—especially in Full treatment schools. ApaL strengthened reading instruction in the intervention schools on all EGRA measures, as evidenced by student reading outcomes and the observation of teacher instructional behavior. After six months of participation in ApaL, students in the intervention schools made marked improvement in their reading performance compared with students in the Control schools. Looking across EGRA subtasks, we found intervention groups showed the greatest improvements in letter recognition (identifying and sounding out letters), familiar word reading, and reading connected text (fluency).

Compared with Midline 1, letter recognition by third graders in the intervention schools increased from 16 to 29 correct letters read per minute (clpm), an increase of 78% versus an increase of 54% in Control schools. In treatment schools, familiar word reading doubled from 3.7 correct words per minute (cwpm) at Midline 1 to 7.3 cwpm at Midline 2. By contrast, in Control schools, the improvement was modest, from 2.9 to 3.2 cwpm, a 10% increase. Reading connected text (fluency) shows the same patterns: treatment groups rose from 4.9 cwpm at Midline 1 to 13.4, an increase of 174% while students in Control schools who read 4.4 cwpm at Midline 1 and were reading 5.2 cwpm at Midline 2, an 18% increase over what was observed at Midline 1. Differences in gains between treatment and Control groups are always significant and with very few exceptions, the differences observed between Full and Medium treatment groups are also significant.

The fact that students in the Full treatment group outperform their counterparts in the Medium treatment group could be the effect of the school management component, which is part of the Full treatment. Figure 1 compares scores obtained at Midline 1 (October 2013) and Midline 2 (September 2014) and provides an overall picture of the evolution of the groups between the two data points.

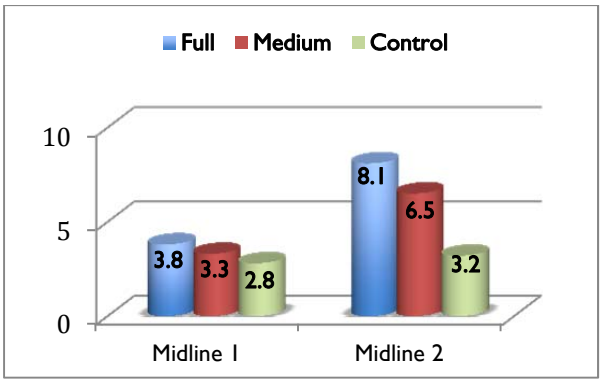

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Figure 1 Scores on familiar word reading at Midline 1 and Midline 2 by treatment group

Although treatment and Control groups were somewhat similar at Midline 1, with treatment groups slightly ahead of the Control, at Midline 2, after a whole school year of project implementation, the differences have become larger and statistically quite significant with the Full treatment group clearly ahead of the other two, especially ahead of Control. The information displayed in Figure 1 shows that while at Midline 1 the difference in the number of words read by students in the treatment group and in the Control group is small (0.75 words) at Midline 2 students in treatment groups are able to read more than twice the number of words read by students in the Control group.

Considering that our sample is representative of the entire second and third grade student population in the 180 schools where the project was implemented as well as of second and third grade teachers and of school directors, we can project the results obtained by the 3,475 students in the sample to the entire population of beneficiaries: 45,469 second and third grade students, 849 teachers and 61 school directors.

The main focus of an Impact Evaluation is on the observed differences between the treatment and the Control groups in order to assess the magnitude of the impact that resulted from the project. Comparisons at the third grade level are the most relevant because international reading skills benchmarks have been established for Grade 3 in developing countries—a minimum of 45 words correctly read per minute to allow students to comprehend what they read—but not for second grade. Figure 2 compares results obtained on three EGRA subtests by intervention group. These findings are discussed in detail in the Findings section.

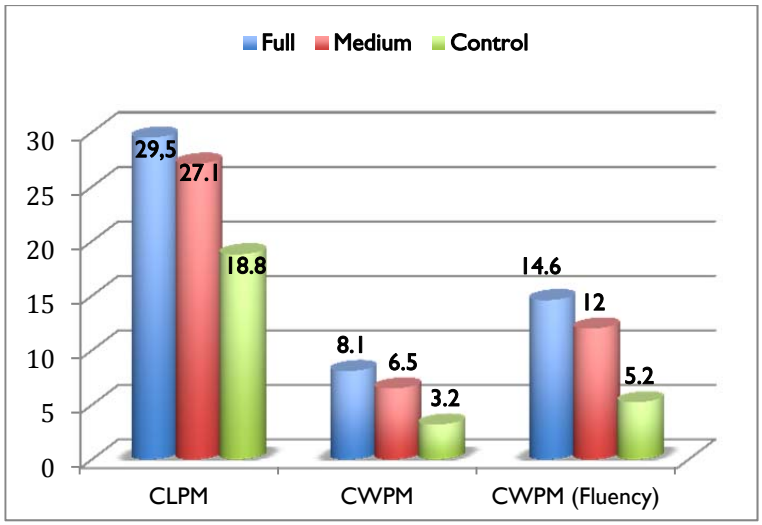

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Figure 2 Number of letters, familiar words and words in connected text read by 3rd graders

Figure 2 shows clearly that in spite of being equivalent at Baseline, students in the treatment groups—especially the Full treatment group—clearly outperform their counterparts in the Control group at Midline 2.

Reading 20+ familiar words per minute is a useful indicator that shows how far along students are on the way to reach the objective of 45 words per minute that allows them to read a text with comprehension. Figure 2 shows the percentage of third graders able to read 20 or more words per minute.

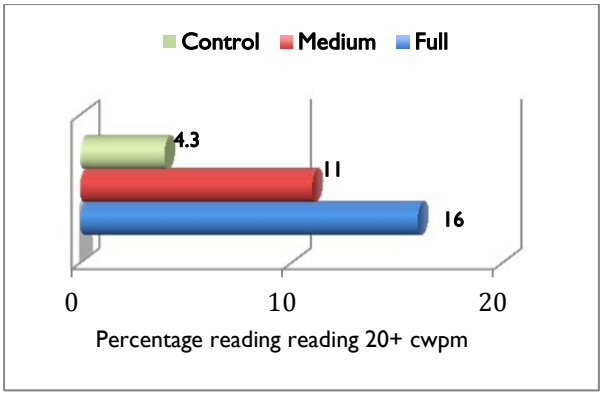

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Figure 3 Percentage of third graders correctly reading 20 + words per minute at Midline 2 by treatment group

We note that 15.9% of all Grade 3 students who have benefitted from a year of ApaL Full treatment can read at least 20 familiar words per minute correctly (as compared to 4.3% of Grade 3 students in Control schools). The percentage of third graders able to read 20 or more words in Control schools (4.3% at Midline 2) provides an insight of the progress all 1,704 third graders would likely have made without the benefit of the ApaL program. It is clear that the differences between Control and Full and Medium groups have accelerated as a result of approximately six months of intervention over the course of the 2014 school year with the performance of the Control group falling farther behind the treatment groups. We strongly encourage MINED to establish and monitor intermediate benchmarks or targets for improvement as recommended by the joint United Nations Educational, Scientific and

Cultural Organization (UNESCO) Institute for Statistics (UIS) and Brookings Center for Universal Education Learning Metrics Task Force.

Finally, significant differences were observed between the performance of male and female students (on all EGRA subtests except Oral comprehension), urban and rural schools and less so between the provinces. In the Findings section we provide a break out of gender, province and rural/urban differences.

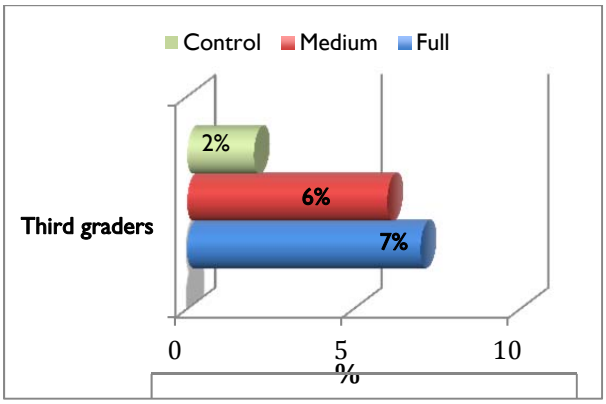

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Figure 4 Percentage of grade 3 students correctly reading 45 + words of connected text

Gender Gap. With the exception of Oral comprehension and Concepts about Print (CAP), the EGRA scores obtained by males and females at Midline 2 differ consistently and significantly. The same pattern was observed at Baseline and Midline 1. Both in Grade 2 and 3 significant differences are noted in Letter recognition, Familiar word reading and Fluency (reading connected text). Grade 2 male students seem to do better in treatment schools than in Control schools: differences observed in Control schools are not significant except for CAP. In Grade 3, all differences between boys' and girls' scores—with the exception of Oral Comprehension—are significant even in Control, suggesting that the gap is widening and that boys outperform girls regardless of the type of intervention.

We do note that following one full year of the implementation of the ApaL program, 6.0% of Grade 3 boys and 4.2% of Grade 3 girls were able to read at the internationally accepted goal of a minimum of 45 words per minute and believe that it is highly realistic to assume that when learners have the opportunity to benefit from ApaL for more than one grade, the ratio of Grade 3 students able to read at the 45 words per minute goal will increase significantly.

Differences between Provinces and the Urban-Rural Gap. Significant differences on EGRA scores among students in Nampula and Zambézia were observed. These differences had been noted at Baseline and suggested to the IE team that results had to be analyzed by province. At Midline 2 the results are inconclusive. For example, Grade 2 and Grade 3 students in Zambézia obtain better scores on Oral comprehension and on Letter reading than their counterparts in Nampula; Nampula students obtain higher scores on CAP and Reading familiar words than Zambézia students. In Zambézia, students perform better than in Nampula when it comes Fluency and Reading comprehension. It is possible that the differences observed between provinces are linked to the urban-rural gap and that differences seen by province may, in reality, be differences between urban and rural schools.

Differences observed between student performance on the EGRA at urban and rural schools are all significant at 0.000 with students from urban communities consistently outperforming their counterparts in rural communities in every skills assessed. In all cases, difference between treatment and Control

groups remain strong and significant showing the impact of ApaL. Table 1 provides the overall picture (note that all differences are significant).

Table 1 Differences between type of school by grade and intervention group

	Grade 2 Urban			Grade 2 Rural		
	Full	Medium	Control	Full	Medium	Control
Letters	24.5	17.7	16.0	18.1	17.0	12.8
Words	4.5	3.3	2.0	3.0	2.3	1.1
Fluency	6.9	4.7	3.0	4.6	4.0	1.5
	Grade 3 Urban			Grade 3 Rural		
	Full	Medium	Control	Full	Medium	Control
Letters	34.5	32.2	32.7	27.7	26.0	16.5
Words	9.7	9.5	5.8	7.5	5.3	2.8
Fluency	16.4	16.7	8.1	14.0	10.0	4.8

The IE data allow us to point to these differences but does not allow us to answer questions regarding the reasons behind them. Special studies in the communities where ApaL is being implemented will be needed to clarify why, even when girls have lower absentee rates and lower attrition rates between Grades 2 and 3 (even if not statistically significant) and equal boys in Oral comprehension, they still fall behind as the tasks become more complex. It is noted that the gender gap seems to be lower in treatment school, especially in the Full treatment group. As to the urban-rural reading gap found in the IE sample, some studies suggest that the difference between rural and urban reading performance is most strongly related to community differences and not to the quality of the schools. The rural-urban reading differences seem to be linked to community differences in levels of adult education and the nature of work these adults have available to them.

Conclusions

The report presents compelling evidence that focusing on the quality of reading instruction in early grades and on the quantity of instruction provided can have a positive impact on student reading performance in a relatively limited amount of time—six months. The observation of 319 classes conducted by trained ApaL enumerators shows that the project was able to make changes in teacher instructional reading practices. Teachers in intervention schools have implemented reading instruction strategies in their classrooms fairly consistently and were able to guide students to pronounce sounds of letters, associate words with letters and blend letter sounds to form syllables and words.

The availability of TLAs, decodable books and "read aloud" books are a direct result of school participation in ApaL. Global studies on children's early reading have shown that having books to read at home is a key factor that contributes to children's early reading achievement. Interviews with school directors and pedagogical directors (PDs) confirm that students are very keen on taking the decodable books home and that prior to ApaL no reading material at the appropriate level was available for children to take home. On the day of the visits, of the students present, 77% in the Full and 79% of those in the Medium treatment group were observed with ApaL books in their hands. Of course the percentage of students in Control schools with books is very small (10%) because they have not received ApaL books but this information shows that when students have books, they will use them.

The IE was also charged with determining the cost-effectiveness of the two alternative treatments, Full and Medium. The difference in gains between students in Full and Medium treatment and their counterparts in Control schools is consistently significant, indicating that the incremental amount invested in Full (US$13.33 per child) and in Medium (US$10.58 per child) was sufficient to make an impact. In only in one subtest Letter recognition, is the difference between Medium and Control non-significant for both Grade 2 and 3, but the differences between Full and Control are consistently

significant for all EGRA sub-tests. Based on the differences observed between treatment groups the Full treatment yields more gains per US$1 spent than the Medium alternative.

But information provided in the report also draws attention to a number of challenges that USAID ApaL will continue to face when it expands in 2015 to over 500 schools. The most urgent, and likely the most difficult to overcome, is the high absentee rates of students, teachers and school directors. On a typical day near the end of the school year, student absentee rate is extremely high: 58% (52% Full; 59% Medium; 62% Control). Rather than overcrowded classrooms or lack of materials, this may be the single most important challenge that ApaL needs to overcome. While the smaller-than-average absentee rate observed at Full schools may be a result of the added component of school management, it is important to realize that absenteeism is a system-wide challenge that requires all stakeholders to join forces and devise strategies focused on getting all students to school every day. ApaL has identified the challenge and called attention to high absentee rates and has been working with the local education institutions (LEIs) such as the Service for Education of Youth and Technology (SDEJT) and the Provincial Directorate for Education and Culture (DPEC) to address the issue.

Teacher, SD and PD absentee rates compound the problem. In 24% of the 180 schools visited, both the SD and PD were absent on the day of visit. It was generally observed that instruction begins with significant delays in many of the schools where the project has been working—typically the average delays in the start of the school day is from 24 minutes at Full treatment schools to 46 in Control schools and even 58 minutes in Zambézia Control schools. It is possible to look at the absentee rates as a chain reaction: when the director of the school (the assistant director or the pedagogical director) is not present at the beginning of the school day, teachers may feel that it is not important for them to be there either. If students come to school and their teacher is not there they may learn the lesson that school is not important and be truant as they please—on a typical day 58% of them do so.

The findings show that the project has indeed improved the EGRA scores of treatment school students over the Control group at every EGRA subtest and that the differences are significant. But even though impressive progress has been achieved and results are statistically significant, the educational significance is modest. A concerted effort of all stakeholders is needed to reach the 45 word per minute mark considered by reading specialists the minimum number of words required to read with comprehension. It is clear that designing and implementing an educational program in early grade reading such as ApaL in a country going through transition after years of having experienced nationwide conflict is no small feat. Overcoming roadblocks and barriers involves flexibility, creative problem solving and compromise. Establishing new ways of teaching and learning, supervision and support requires new ways of thinking for many education professionals. While gains are still modest in absolute terms, the increase in student achievement is impressive and the changes noted in the classrooms confirm that the quality of teaching and better school management does impact student outcomes. Based on the differences observed between Midline 1 and Midline 2, ApaL type strategies integrated through grades 1-3 with adequate support from district level staff would probably result in much higher differences between the treatment and the Control groups. At the same time, as reported by ApaL, training SD in how to manage a school more effectively has reduced absenteeism and tardiness—with the result of increasing the quantity of instruction. The USAID Aprender a Ler project may be initiating some major paradigm changes in Mozambique.

Recommendations

The recommendations offered in this section are based on the data analyzed by the IE and refer specifically to the results obtained, which are related to the improvement of early grade reading skills. We also focus on two ApaL intermediate indicators: (i) improved quality and (2) improved quantity of early reading instruction. The main recommendations to strengthen the overall impact of the project are outlined below, in general order of priority.

1. **The ApaL program works, and should be continued.** Although absolute levels of achievement remain lower than desired, both Full and Medium treatments contributed to significant gains in student reading skills relative to Control schools, especially in third grade. Teacher training was shown to impact teacher classroom behavior, which in turn was shown to impact student performance on the EGRA. Similarly, the provision of TLAs under both treatments is shown to both change classroom activities and resultant student learning of early grade reading skills.

2. **Expansion of ApaL in 2015 should be performed under the Full treatment model.** The cost-effectiveness analysis clearly demonstrates that significant gains on most EGRA sub scores in both grades are obtained with the inclusion of the SD-oriented activities. These gains exceed the marginal costs of the Full treatment model over those of the Medium treatment model.

Nonetheless, there are a number of areas that limited the impact of the ApaL model, and these should be addressed as the intervention is expanded beyond the 2014 pilot schools. Even though significant gains were demonstrated by the ApaL interventions relative to Control schools, high teacher and student absenteeism, in particular, limited student exposure to the new techniques and practices and TLAs available. Furthermore, not all sub-groups showed similar gains. Deeper use of the detailed EGRA data can only go so far. We believe that the ApaL project should develop, test and evaluate the effectiveness of different approaches to improve the EGRA results of students in various sub-groups. Recommendations on this are listed below.

3. **Implement strategies to reduce the high absentee rates of teachers, and school/pedagogical directors and the delay in the start of the day.** The challenges posed by SD, PD and teacher absenteeism and tardiness deserve continued attention since this is the single factor that most negatively impacts all aspects of student learning by reducing the quantity of instruction that students receive. While by no means an "either-or" matter and efforts can and should be made to address all aspects of absenteeism concurrently, based on the data and our own professional judgement, we recommend that priority be given to (a) absentee teachers and SD/PD, (b) teachers and SD/PD who are frequently tardy, and (c) student absenteeism.

- We recognize that actions related to instructional personnel are beyond USAID's direct span of control, but encourage the Mission to continue its engagement with MINED on this issue. When teachers and school directors often arrive late or fail to arrive, they communicate to students and parents the message that going to school is not important. As the program scales up in 2015 to cover over 500 schools in the six target districts, the DPEC and the SDEJT will need to be called on to support improved attendance. ApaL is already carrying out meetings with local and district authorities to develop mechanisms to support existing MINED systems for holding schools accountable. ApaL should also consider which incentives could be put into place to encourage teachers, SDs and PDs to reduce the level of absenteeism and tardiness.
- Both USAID and ApaL recognize the potential relationship between teacher tardiness and student learning; however, researching this was beyond the scope of work of the IE, especially since it is probable that ApaL has or can get the relevant data itself. We encourage ApaL to determine for low-performing schools when in the school day reading lessons typically take place and to match this against schools in the sample where teachers were tardy to determine whether there appears to be a correlation (which, however, does not necessarily reflect a causation). If feasible, a similar analysis should be undertaken for higher-performing schools.

4. **Engage parents and the community in the effort to reduce student tardiness and absenteeism.** As a corollary to teacher tardiness, when classes start 15, 20 or even 40 minutes late on a typical day, the time available for learning becomes insufficient, students have reduced time-on-task and consequently learn less. When teachers and/or students are not present at all, there is no opportunity for learning. There are two separate sets of issues involved, tardiness and absenteeism, which based on our experience overlap but do not necessarily have the same causes.

- It will be necessary to engage parents, as heads of their own households and as a group, to ensure that children do not miss school and arrive on time. Reducing student tardiness and absenteeism requires the cooperation from parents or other adults who are responsible for the children so *idea champions* must be found within the community.
- Strategies to reduce tardiness and absenteeism may include prizes for students with good attendance, *good attendance* certificates or a posted list of students with 100% attendance during the week or during the month. Consider introducing a simple competition among classrooms and awarding parents and students *highest attendance/least tardiness* certificates or starting the day with a playful activity to motivate students to arrive on time. These do not have cost implications.
- USAID should commission a study to determine the most significant causes of absenteeism and propose recommendations. Guided both by the IE and our own experience, we suggest that the study consider, for example:
  - To what extent, if any, is the question of absentee students real or an artifact of "ghost students," i.e., children who realistically were rarely, if ever, present in school?
  - Are there particular patterns in absenteeism? E.g., is it seasonal? To what extent, if at all, do children from the same family take turns in attending class?
  - What are the commonalities and the differences between attendance by boys and girls in rural and urban areas?
  - What constraints do parents feel with respect to sending their children to school regularly?
  - What practices are in place to alert parents that their children are missing school?
  - What formal or informal support systems are in place to keep children from falling behind?
  - What relationships, if any, are there between repetition and absenteeism? Per Figure 5, in Zambezia repetition rates were self-reported at over 20% for grades 1, 2, and 3, and of course drop-out rates were not self-reported at all.
    Related to this could be an analysis of a possible relationship of the impact of ApaL on student repetition. This could not be conducted within the time frame of the current IE, but could be conducted during the follow-on or could be conducted by ApaL itself.

5. Make reading a priority and clarify expectations. It is important for MINED both to establish yearly benchmarks that will lead schools towards the generally recognized 45 correct word per minute target and to put into place a package of incentives—not necessarily monetary—to benefit schools that reach the yearly target while providing support to schools that lag behind. Reading competitions, prizes for teachers/schools that get students to make progress towards the mark of 45 words correctly read by the end of grade 3, etc. should be considered.

- Regardless of how creative and how well implemented and managed the project is, without a firm resolve on the part of MINED officers at the district, provincial and central level to make reading a priority, reading achievement will continue to fall short of what is acceptable. The RSA designed and implemented by ApaL is a powerful tool that could be used to assess school progress towards the 45 cwpm pm target.
- Expand on efforts to engage parents in promotion of reading at home. Learn more about how the decodable books, and other books, are actually being used in the home environment, and consider how appropriate ones can be replicated.

6. Conduct focused studies to investigate the differences in reading performance observed in the subgroups—girls/boys, provinces, urban and rural. Girls' absentee rate is lower than boys' and they seem to drop out less often between second and third grades. In addition, their level of performance on the EGRA subtest Oral comprehension is equal or higher than boys. Yet, boys consistently outperform girls in five out of six EGRA sub-tasks, especially in the more complex tasks such as reading familiar words, reading connected text and answering comprehension questions. While the EGRA data show this situation clearly, as it also shows differences between provinces and between rural and urban

schools, an Impact Evaluation cannot determine the reasons behind what the data show. Special studies need to be conducted in the communities where the project is implemented to provide insights into the causes for these differences. This is essential information for ApaL because it would allow the project to design and incorporate strategies and procedures to reduce the gender gap and the urban-rural gap that currently exist in the schools where the project is being implemented.

7. Strengthen and continue to experiment and perfect the RSA procedures. Supervision and support has a positive impact on improving teachers' practice, particularly when it is specific, constructive and non-threatening. More analysis of the supervision and support capacity, procedures and practices needs to be carried out in order to provide more targeted improvements to this important component. The RSA procedure developed and implemented by ApaL in the treatment schools could be adapted to MINED's needs at the district level and become instrumental in the improvement of an effective supervision and accountability system.

8. Identify and, if possible/necessary, address the reasons for significant numbers of over-age students. As indicated in Table 6, in Zambézia and particularly in Nampula, over 60% of the students in the target grades are over-age, with some primary school students even being 17 years of age. From looking at the age breakdowns, and from knowledge of patterns in other countries, one could surmise that this might be partially the result of expansion of education to previously unserved or underserved communities, and therefore might be partially an artifact that would revert to an expected normal pattern, but with respect to the situations in Zambézia and Nampula, we have no evidence to support this surmise. However, in any event it is important for educational planning to learn the actual reasons.

9. In association with the recommended studies on repetition, encourage MINED to conduct cohort analyses. These would be helpful in identifying and later studying both higher-performing and lower-performing schools. While studies for grade levels above grade 3 would likely be outside the scope of work for ApaL, we believe that they would still fall within parameters for Goal 1 of USAID's Education Strategy.

10. Conduct an item analysis of results from the EGRA instruments to identify issues associated with particular letters and/or words. This can help to identify phonological issues that may call for more attention from teachers than they may currently receive.